

## SEQUENCE LISTING

<110> Keler, Tibor  
Endres, Michael  
He, Lizhen  
Ramakrishna, Venky

<120> ANTIBODY VACCINE CONJUGATES AND USES  
THEREFOR

<130> MXI-301

<150> 60/443979

<151> 2003-01-31

<160> 32

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1407

<212> DNA

<213> Homo sapiens

<400> 1

```

atgggatgga gctgtatcat cctgttcctc gtggccacag caaccggtgt ccactctgag 60
gtgcagctgg tgcagtctgg agcagaggtg aaaaagcccg gggagtctct gaggatctcc 120
tgtaagggtt ctggagacag ttttaccacc tactggatcg gctgggtgcg ccagatgccc 180
gggaaaggcc tggagtggat ggggatcatc tatcctgggtg actctgatac catatacagc 240
ccgtccttcc aaggccaggt caccatctca gccgacaagt ccatcagcac cgcctacctg 300
cagtggagca gcctgaaggc ctccgacacc gccatgtatt actgtacgag aggggaccgg 360
ggcgttgact actggggcca ggggaaccctg gtcaccgtct cctcagctag caccaagggc 420
ccatcgggtct tccccctggc accctcctcc aagagcacct ctggggggcac agcggccctg 480
ggctgcctgg tcaaggacta cttccccgag ccggtgacgg tgcgtggaa ctcaggcgcc 540
ctgaccagcg gcgtgcacac cttccccggt gtccctacagt cctcaggact ctactccctc 600
agcagcgtgg tgaccgtgcc ctccagcagc ttgggcaccc agacctacat ctgcaacgtg 660
aatcacaagc ccagcaacac caaggtggac aagaaagttg agcccaaata ttgtgacaaa 720
actcacacat gccaccgtg cccagcacct gaactcctgg ggggaccgtc agtcttcctc 780
ttccccccaa aaccaagga caccctcatg atctcccgga cccctgaggt cacatgcgtg 840
gtggtggacg tgagccacga agaccctgag gtcaggttca actggtacgt ggacggcggtg 900
gaggtgcata atgccaagac aaagccgcgg gaggagcagt acaacagcac gtaccgtgtg 960
gtcagcgtcc tcaccgtcct gcaccaggac tggctgaatg gcaaggagta caagtgaag 1020
gtctccaaca aagccctccc agcccccatc gagaaaacca tctccaaagc caaagggcag 1080
ccccgagAAC cacaggtgta caccctgccc ccatcccggg atgagctgac caagaaccag 1140
gtcagcctga cctgcctggt caaaggcttc tatcccagcg acatcgccgt ggagtgggag 1200
agcaatgggc agccggagaa caactacaag accagcctc ccgtgctgga ctccgacggc 1260
tccttcttcc tctacagcaa gctcaccgtg gacaagagca ggtggcagca ggggaacgtc 1320
ttctcatgct ccgtgatgca tgaggctctg cacaaccact acacgcagaa gagcctctcc 1380
ctgtctccgg gtaaaggctc gagctga                                     1407

```

<210> 2

<211> 468

<212> PRT

<213> Homo sapiens

<400> 2

```

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1             5             10             15
Val His Ser Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
          20          25          30
Pro Gly Glu Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Asp Ser Phe
      35      40      45
Thr Thr Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu

```

50					55					60					
Glu	Trp	Met	Gly	Ile	Ile	Tyr	Pro	Gly	Asp	Ser	Asp	Thr	Ile	Tyr	Ser
65					70					75					80
Pro	Ser	Phe	Gln	Gly	Gln	Val	Thr	Ile	Ser	Ala	Asp	Lys	Ser	Ile	Ser
			85						90					95	
Thr	Ala	Tyr	Leu	Gln	Trp	Ser	Ser	Leu	Lys	Ala	Ser	Asp	Thr	Ala	Met
			100					105					110		
Tyr	Tyr	Cys	Thr	Arg	Gly	Asp	Arg	Gly	Val	Asp	Tyr	Trp	Gly	Gln	Gly
		115				120						125			
Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe
	130					135					140				
Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu
145					150					155					160
Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp
				165					170					175	
Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu
		180					185						190		
Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser
		195					200						205		
Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro
		210				215						220			
Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys
225					230					235					240
Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro
			245						250					255	
Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser
		260					265						270		
Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp
		275					280						285		
Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn
	290					295						300			
Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val
305					310					315					320
Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu
			325						330					335	
Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys
		340						345					350		
Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr
	355						360					365			
Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr
	370					375					380				
Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu
385					390					395					400
Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu
			405					410						415	
Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys
		420					425						430		
Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu
	435					440						445			
Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly
	450					455					460				
Lys	Gly	Ser	Ser												
465															

<210> 3  
 <211> 348  
 <212> DNA  
 <213> Homo sapiens

<400> 3  
 gaggtgcagc tgggtgcagtc tggagcagag gtgaaaaagc cccggggagtc tctgaggatc 60  
 tcctgtaagg gttctggaga cagttttacc acctactgga tcggctgggt gcgccagatg 120  
 cccgggaaag gcctggagtg gatggggatc atctatcctg gtgactctga taccatatac 180

```

agcccgctcct tccaaggcca ggtcaccatc tcagccgaca agtccatcag caccgcctac 240
ctgcagtggga gcagcctgaa ggcctcggac accgccatgt attactgtac gagagggggac 300
cggggcgttg actactgggg ccaggaacc ctggtcaccg tctcctca 348

```

```

<210> 4
<211> 116
<212> PRT
<213> Homo sapiens

```

```

<400> 4
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu
1          5          10          15
Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Asp Ser Phe Thr Thr Tyr
20          25          30
Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met
35          40          45
Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Ile Tyr Ser Pro Ser Phe
50          55          60
Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr
65          70          75          80
Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys
85          90          95
Thr Arg Gly Asp Arg Gly Val Asp Tyr Trp Gly Gln Gly Thr Leu Val
100         105         110
Thr Val Ser Ser
115

```

```

<210> 5
<211> 702
<212> DNA
<213> Homo sapiens

```

```

<400> 5
atgggatgga gctgtatcat cctgttcctc gtggccacag caaccggtgt ccactccgac 60
atccagatga ccagtcctcc atcctcactg tctgcatctg taggagacag agtcaccatc 120
acttgctcgg cgagtcaggg tattagcagg tggtagcct ggtatcagca gaaaccagag 180
aaagccccta agtccctgat ctatgctgca tccagtttgc aaagtggggt cccatcaagg 240
ttcagcggca gtggatctgg gacagatttc actctcacca tcagcggcct gcagcctgaa 300
gattttgcaa cttattactg ccaacagtat aatagttacc ctccggacgtt cggccaaggg 360
accaagggtg aaatcaaacg tacggtggcg gcgccatctg tcttcattct cccgccatct 420
gatgagcagt tgaaatctgg aactgcctct gttgtgtgcc tgctgaataa cttctatccc 480
agagaggcca aagtacagtg gaagggtgat aacgcctccc aatcgggtaa ctcccaggag 540

agtggtcacag agcaggacag caaggacagc acctacagcc tcagcagcac cctgacgctg 600
agcaaagcag actacgagaa acacaaagtc tacgcctgcg aagtcaccca tcagggcctg 660
agctcgcccc tcacaaagag cttcaacagg ggagagtgtt ag 702

```

```

<210> 6
<211> 233
<212> PRT
<213> Homo sapiens

```

```

<400> 6
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1          5          10          15
Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
20          25          30
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile
35          40          45
Ser Arg Trp Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys
50          55          60
Ser Leu Ile Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg
65          70          75          80

```

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Gly  
                     85                    90                    95  
 Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser  
                     100                    105                    110  
 Tyr Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr  
                     115                    120                    125  
 Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu  
                     130                    135                    140  
 Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro  
 145                    150                    155                    160  
 Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly  
                     165                    170                    175  
 Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr  
                     180                    185                    190  
 Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His  
                     195                    200                    205  
 Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val  
 210                    215                    220  
 Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 225                    230

<210> 7  
 <211> 321  
 <212> DNA  
 <213> Homo sapiens

<400> 7  
 gacatccaga tgacccagtc tccatcctca ctgtctgcat ctgtaggaga cagagtcacc 60  
 atcacttgtc gggcgagtc gggattagc aggtggtag cctgggtatca gcagaaacca 120  
 gagaaagccc ctaagtcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180  
 aggttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcgg cctgcagcct 240  
 gaagattttg caacttatta ctgccaacag tataatagtt accctcggac gttcggccaa 300  
 gggaccaagg tggaaatcaa a 321

<210> 8  
 <211> 107  
 <212> PRT  
 <213> Homo sapiens

<400> 8  
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
   1                    5                    10                    15  
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Arg Trp  
                     20                    25                    30  
 Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile  
                     35                    40                    45  
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
                     50                    55                    60  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Gly Leu Gln Pro  
 65                    70                    75                    80  
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro Arg  
                     85                    90                    95  
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
                     100                    105

<210> 9  
 <211> 1842  
 <212> DNA  
 <213> Homo sapiens

<400> 9  
 atgggatgga gctgtatcat cctgttcctc gtggccacag caaccggtgt ccactctgag 60

```

gtgcagctgg tgcagtctgg agcagaggtg aaaaagcccg gggagtctct gaggatctcc 120
tgtaagggtt ctggagacag ttttaccacc tactggatcg gctgggtgcg ccagatgccc 180
gggaaaggcc tggagtggat ggggatcatc tatcctgggtg actctgatac catatacagc 240
ccgtccttcc aaggccaggt caccatctca gccgacaagt ccatcagcac cgcctacctg 300
cagtggagca gcctgaaggc ctcggacacc gccatgtatt actgtacgag aggggaccgg 360
ggcgttgact actggggcca gggaaacctg gtcaccgtct cctcagctag caccaagggc 420
ccatcggtct tccccctggc accctcctcc aagagcacct ctgggggcac agcggccctg 480
ggctgcctgg tcaaggacta cttccccgag ccggtgacgg tgcgtggaa ctcaggcgcc 540
ctgaccagcg gcgtgcacac cttcccggtt gtcctacagt cctcaggact ctactccctc 600
agcagcgtgg tgaccgtgcc ctccagcagc ttggggcacc agacctacat ctgcaacgtg 660
aatcacaagc ccagcaacac caaggtggac aagaaagtgt agcccaaatac ttgtgacaaa 720
actcacacat gccaccgtg cccagcacct gaactcctgg ggggaccgtc agtcttcttc 780
ttcccccaaa aacccaagga caccctcatg atctcccggg cccctgaggt cacatgcgtg 840
gtggtggacg tgagccacga agaccctgag gtcaagttca actggtacgt ggacggcggtg 900
gaggtgcata atgccaagac aaagccgcgg gaggagcagt acaacagcac gtaccgtgtg 960
gtcagcgtcc tcaccgtcct gcaccaggac tggctgaatg gcaaggagta caagtgcaag 1020
gtctccaaca aagccctccc agcccccatc gagaaaacca tctccaaagc caaagggcag 1080
ccccgagaac cacaggtgta caccctgccc ccatcccggt atgagctgac caagaaccag 1140
gtcagcctga cctgcctggt caaaggcttc tatcccagcg acatcgccgt ggagtgggag 1200
agcaatgggc agccggagaa caactacaag accacgcctc ccgtgctgga ctccgacggc 1260
tccttcttcc tctacagcaa gctcaccgtg gacaagagca ggtggcagca ggggaacgtc 1320
ttctcatgct ccgtgatgca tgaggctctg cacaaccact acacgcagaa gagcctctcc 1380
ctgtctccgg gtaaaggctc gagctccaag gagccgcttc ggccacggtg ccgccccatc 1440
aatgccacc tggctgtgga gaaggagggc tgccccgtgt gcatcaccgt caacaccacc 1500
atctgtgccg gctactgcc caccatgacc cgcgtgctgc aggggggtcct gccggccctg 1560
cctcaggtgg tgtgcaacta ccgcgatgtg cgtctcgagt ccatccggct ccctggctgc 1620
ccgcgcggcg tgaaccccg ggtctcctac gccgtggctc tcagctgtca atgtgcactc 1680
tgccgccgca gcaccactga ctgcgggggt cccaaggacc accccttgac ctgtgatgac 1740
ccccgcttcc aggactcctc ttctcaaaag gcccctcccc ccagccttcc aagtccatcc 1800
cgactcccgg ggccctcgga cccccgatc ctcccacaat aa 1842

```

<210> 10  
 <211> 613  
 <212> PRT  
 <213> Homo sapiens

```

<400> 10
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1          5          10          15
Val His Ser Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20          25          30
Pro Gly Glu Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Asp Ser Phe
 35          40          45
Thr Thr Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu
 50          55          60
Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Ile Tyr Ser
 65          70          75          80
Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser
 85          90          95
Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met
100          105          110
Tyr Tyr Cys Thr Arg Gly Asp Arg Gly Val Asp Tyr Trp Gly Gln Gly
115          120          125
Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
130          135          140
Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
145          150          155          160
Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
165          170          175
Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
180          185          190
Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
195          200          205
Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro

```

210	215	220
Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys		
225	230	235
Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro		240
	245	250
Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser		255
	260	265
Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp		270
	275	280
Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn		285
	290	295
Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val		300
305	310	315
Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu		320
	325	330
Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys		335
	340	345
Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr		350
	355	360
Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr		365
	370	375
Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu		380
385	390	395
Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu		400
	405	410
Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys		415
	420	425
Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu		430
	435	440
Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly		445
	450	455
Lys Gly Ser Ser Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile		460
465	470	475
Asn Ala Thr Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr		480
	485	490
Val Asn Thr Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val		495
	500	505
Leu Gln Gly Val Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg		510
	515	520
Asp Val Arg Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val		525
	530	535
Asn Pro Val Val Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu		540
545	550	555
Cys Arg Arg Ser Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu		560
	565	570
Thr Cys Asp Asp Pro Arg Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro		575
	580	585
Pro Pro Ser Leu Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr		590
	595	600
Pro Ile Leu Pro Gln		605
610		

<210> 11  
 <211> 1325  
 <212> DNA  
 <213> Homo sapiens

<400> 11  
 aagcttcacc atgggatgga gctgtatcat cctcttcttg gtggccacag ctaccggtgt 60  
 ccactccgac atccagatga cccagtctcc atcctcactg tctgcatctg taggagacag 120  
 agtcaccatc acttgctcgg cgagtcaggg tattagcagg tggtagcct ggtatcagca 180  
 gaaaccagag aaagccccta agtcctgat ctatgctgca tccagtttgc aaagtggggt 240  
 cccatcaagg ttcagcggca gtggatctgg gacagatttc actctcacca tcagcggcct 300

```

gcagcctgaa gattttgcaa cttattactg ccaacagtat aatagttacc ctcggacggt 360
cggccaaggg accaaggtgg aaatcaaagg agggggcggt tccggaggag gcggcagcgg 420
gggaggaggt agcgaggtgc agctggtgca gtctggagca gaggtgaaaa agcccgggga 480
gtctctgagg atctcctgta agggttcttg agacagtttt accacctact ggatcggctg 540
ggtgcgccag atgcccggga aaggcctgga gtggatgggg atcatctatc ctggtgactc 600
tgataccata tacagcccgt ctttccaagg ccaggtcacc atctcagccg acaagtccat 660
cagcaccgcc tacctgcagt ggagcagcct gaaggcctcg gacaccgcca tgtattactg 720
tacgagaggg gaccggggcg ttgactactg gggccaggga accctggtca ccgtctctc 780
aggctctacc ggtgggggag gctcgagctc caaggagccg cttcggccac ggtgccgccc 840
catcaatgcc accctggctg tggagaagga gggctgcccc gtgtgcatca ccgtcaacac 900
caccatctgt gccggctact gccccaccat gaccgcgctg ctgcaggggg tcctgcccgc 960
cctgcctcag gtggtgtgca actaccgcga tgtgcgcttc gagtccatcc ggctccctgg 1020
ctgccccgcg ggcgtgaacc ccgtggtctc ctacgcccgt gctctcagct gtcaatgtgc 1080
actctgccgc cgcagcacca ctgactgcgg ggggtcccaag gaccaccctc tgacctgtga 1140
tgacccccgc ttccaggact cctcttctc aaaggcccct cccccagcc ttccaagtcc 1200
atcccgactc ccggggccct cggacacccc gatcctccca caataagcgg ccgcagaaca 1260
gaaactcatc tcagaagagg atctgaatgg cgccgcacat caccatcatc accattgatt 1320
ctaga 1325

```

```

<210> 12
<211> 411
<212> PRT
<213> Homo sapiens

```

```

<400> 12
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1          5          10          15
Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 20          25          30
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile
 35          40          45
Ser Arg Trp Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys
 50          55          60
Ser Leu Ile Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg
 65          70          75          80
Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Gly
 85          90          95
Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser
100          105          110
Tyr Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Gly
115          120          125
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln
130          135          140
Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu Ser Leu Arg
145          150          155          160
Ile Ser Cys Lys Gly Ser Gly Asp Ser Phe Thr Thr Tyr Trp Ile Gly
165          170          175
Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met Gly Ile Ile
180          185          190
Tyr Pro Gly Asp Ser Asp Thr Ile Tyr Ser Pro Ser Phe Gln Gly Gln
195          200          205
Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr Leu Gln Trp
210          215          220
Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys Thr Arg Gly
225          230          235          240
Asp Arg Gly Val Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
245          250          255
Ser Gly Ser Thr Gly Gly Gly Gly Ser Ser Ser Lys Glu Pro Leu Arg
260          265          270
Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu Ala Val Glu Lys Glu Gly
275          280          285
Cys Pro Val Cys Ile Thr Val Asn Thr Thr Ile Cys Ala Gly Tyr Cys
290          295          300
Pro Thr Met Thr Arg Val Leu Gln Gly Val Leu Pro Ala Leu Pro Gln

```

```

305          310          315          320
Val Val Cys Asn Tyr Arg Asp Val Arg Phe Glu Ser Ile Arg Leu Pro
          325          330          335
Gly Cys Pro Arg Gly Val Asn Pro Val Val Ser Tyr Ala Val Ala Leu
          340          345          350
Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser Thr Thr Asp Cys Gly Gly
          355          360          365
Pro Lys Asp His Pro Leu Thr Cys Asp Asp Pro Arg Phe Gln Asp Ser
          370          375          380
Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu Pro Ser Pro Ser Arg Leu
385          390          395          400
Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln
          405          410

```

```

<210> 13
<211> 5
<212> PRT
<213> Homo sapiens

```

```

<400> 13
Thr Tyr Trp Ile Gly
 1              5

```

```

<210> 14
<211> 17
<212> PRT
<213> Homo sapiens

```

```

<400> 14
Ile Ile Tyr Pro Gly Asp Ser Asp Thr Ile Tyr Ser Pro Ser Phe Gln
 1              5              10              15
Gly

```

```

<210> 15
<211> 7
<212> PRT
<213> Homo sapiens

```

```

<400> 15
Gly Asp Arg Gly Val Asp Tyr
 1              5

```

```

<210> 16
<211> 11
<212> PRT
<213> Homo sapiens

```

```

<400> 16
Arg Ala Ser Gln Gly Ile Ser Arg Trp Leu Ala
 1              5              10

```

```

<210> 17
<211> 7
<212> PRT
<213> Homo sapiens

```

```

<400> 17
Ala Ala Ser Ser Leu Gln Ser

```

1 5

<210> 18  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 18  
 Gln Gln Tyr Asn Ser Tyr Pro Arg Thr  
 1 5

<210> 19  
 <211> 143  
 <212> PRT  
 <213> Homo sapiens

<400> 19  
 Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu  
 1 5 10 15  
 Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr  
 20 25 30  
 Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val  
 35 40 45  
 Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg Phe  
 50 55 60  
 Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val Val  
 65 70 75 80  
 Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg Ser  
 85 90 95  
 Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp Asp  
 100 105 110  
 Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu  
 115 120 125  
 Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu  
 130 135 140

<210> 20  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 20  
 Asp Val Arg Phe Glu Ser Ile Arg Leu  
 1 5

<210> 21  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 21  
 Tyr Arg Asp Val Arg Phe Glu Ser Ile  
 1 5

<210> 22  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 22  
 Leu Arg Pro Arg Cys Arg Pro Ile Asn  
 1 5

<210> 23  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 23  
 Ser Arg Leu Pro Gly Pro Ser Asp Thr  
 1 5

<210> 24  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 24  
 Cys Arg Pro Ile Asn Ala Thr Leu Ala  
 1 5

<210> 25  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 25  
 Leu Pro Gly Pro Ser Asp Thr Pro Ile  
 1 5

<210> 26  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 26  
 Cys Pro Arg Gly Val Asn Pro Val Val  
 1 5

<210> 27  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 27  
 Arg Pro Ile Asn Ala Thr Leu Ala Val  
 1 5

<210> 28  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
 Val Ala Leu Ser Cys Gln Cys Ala Leu  
 1 5

<210> 29  
 <211> 294  
 <212> DNA  
 <213> Homo sapiens

<400> 29  
 gaggtgcagc tgggtgcagtc tggagcagag gtgaaaaagc ccggggagtc tctgaagatc 60  
 tcctgtaagg gttctggata cagctttacc agctactgga tcggctgggt gcgccagatg 120  
 cccgggaaag gcctggagtg gatggggatc atctatcctg gtgactctga taccagatac 180  
 agcccgtcct tccaaggcca ggtcaccatc tcagccgaca agtccatcag caccgcctac 240  
 ctgcagtgga gcagcctgaa ggcctcggac accgccatgt attactgtgc gaga 294

<210> 30  
 <211> 98  
 <212> PRT  
 <213> Homo sapiens

<400> 30  
 Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu  
 1 5 10 15  
 Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe Thr Ser Tyr  
 20 25 30  
 Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met  
 35 40 45  
 Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
 50 55 60  
 Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr  
 65 70 75 80  
 Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys  
 85 90 95  
 Ala Arg

<210> 31  
 <211> 285  
 <212> DNA  
 <213> Homo sapiens

<400> 31  
 gacatccaga tgacccagtc tccatcctca ctgtctgcat ctgtaggaga cagagtcacc 60  
 atcacttgtc gggcgagtc gggatttagc agctggtag cctggtatca gcagaaacca 120  
 gagaaagccc ctaagtccct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180  
 aggttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctggagcct 240  
 gaagattttg caacttatta ctgccaacag tataatagtt accct 285

<210> 32  
 <211> 95  
 <212> PRT  
 <213> Homo sapiens

<400> 32  
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
 1 5 10 15  
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Trp  
 20 25 30  
 Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile  
 35 40 45  
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
 50 55 60  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
 65 70 75 80  
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro  
 85 90 95